Analysis of Taiwan's Security Surveillance Industry's Transformation Based on Diamond Model

By
Ching Tang-Lin
林靖唐

Submitted to the Faculty of
Department of International Affairs in partial fulfillment of
the requirements for the degree of
Bachelor of Arts in International Affairs

Wenzao Ursuline University of Languages
2020

WENZAO URSULINE UNIVERSITY OF LANGAUGES
DEPARTMENT OF INTERNATIONAL AFFAIRS

This senior paper was presented

by

Ching Tang-Lin
林靖唐

It was defended on

November 30th, 2019

and approved by

Reviewer 1: Yuan-Ming Chiao Assistant Professor, Department of International Affairs

Signature: ______________________________ Date: ______________________

Reviewer 2: Shao-Tzu Wu Assistant Professor, Department of International Affairs

Signature: ______________________________ Date: ______________________

Advisor: Ren-Her Hsieh, Associate Professor, Department of International Affairs

Signature: ______________________________ Date: ______________________

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Abstract

Taiwan's security surveillance industry has been developing for the last 50 years. Meanwhile, various small enterprises and listed companies have formed regional economies and became increasing matured. The order of Taiwan's mechanical component by SONY has proven our strong technological capabilities. Despite the industry structure seems stable, it had been influenced by price war initiated by the establishment of China's Red Supply Chain causing problems such as the fall of margins on surveillance commodity, and the distribution channels are shaken by the price war that triggers a destructive competition. This qualitative research contains the invitation of six interviewees to understand their perception toward all sorts of dilemma, evaluate crisis management and their strategy to thrive under stress, and then summarize collected information to conjecture circumstances in the future. In this research, Diamond Model is used to analyze industry competitiveness based on cross-influencing conditions. The results of analysis generate further explanations in the chapter of data analysis. To sum up, this research will elaborate the transformation cause by dilemma and development of Taiwan's security surveillance industry based on the Diamond Model.

Keywords: Sustainable Development, Diamond Model, Distribution Channel, China's Red Supply Policy, SMEs, Competitive Advantage, Consumer Electronics

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LIST OF ABBREVIATIONS

Abbreviation	**Stand For**
BSMI	Bureau of Standard, Methodology and Inspection
CCTV	Closed Circuit Television
CA	Chromatic Aberration
DVR	Digital Video Recorder
GPA	Agreement on Government Procurement
HDD	Hard Disk Drive
HEVC	High Efficiency Video Coding
IP	Intellectual Property
ITD	International Telecommunication Union
IT industry	Information Technology industry
KTJ	Kerry TJ Logistics Company Limited
MIIT	Ministry of Industry and Information Technology
MIT	Made in Taiwan
NVR	Network Video Recorder
NAS	Network Attached Storage
OEM	Original Equipment Manufacture
ODM	Original Design Manufacture
OBM	Ordnance Bench Mark
ONVIF	Open Network Video Interface Forum
PSI	Physical Security Interoperability Alliance
PSE	Product Safety of Electrical Appliance &Material
PCC	Public Construction Commission
R&D	Research and Development
RoHS	Restriction of Hazardous Substances Directive
SEMs	Small and Medium Enterprises
SEM	Structural Equation Modeling
SoC	System-on-chip
SI	System Integration
TPMS	Tire-pressure monitoring system
VCR	Video Cassette Recorder
VMS	Video Management System

INTRODUCTION

Background

Overviewing the development of industry in Taiwan, the industry structure transfers from labor-intensive to capital-intensive since 1980s when the surveillance industry began to root. Compared to the dramatic development in IC industry, the surveillance holds small in trade volume, however this niche-industry acquires stable competitive power with leading skill and intensive capital. Later, Taiwan ushered the trend, Taiwan Economic Miracle, uncountable Small and Medium Enterprises (SMEs) were established including surveillance industry, the growing number of SMEs and listed companies gradually formed the economics of scale that completes the comprehensive industry chain in Taiwan. In supply chain, surveillance companies apply Original Equipment Manufacturer (OEM), Original Design Manufacturer (ODM) and Ordnance Bench Mark (OBM) constitute mature structure in Taiwan surveillance industry. Furthermore, the listed companies in Taiwan such as VIVOTEK, GeoVision and DYNACOLOR had devoted capital on invention to reach maximum margin profit as smile curve that proves Taiwan surveillance industry has sufficient qualification to access to technology even correspond whether domestic market or foreign market

For almost fifty years progression, Taiwan security surveillance industry should possess enough capability even take parts in global surveillance market, but the ideal situation not turned in reality when HIKVISION, a Chinese state-owned enterprise was established. HIKVISION not only struck Taiwan and North America surveillance industry but also acquired the biggest market share with 53.6 billion of total revenue in 2017, 42 billion in 2016. By the favored policy and governmental fund, HIKVISION obtains more fundamental resource than any other surveillance enterprises, with financial subsidy, HIKVISION's products can break into the surveillance market with the lowest cost and price which leads to price war toward other companies.

According the given information in context, Taiwan surveillance industry have completed supply chain and technology that should obtain stable market than China's surveillance company, HIKVISION, from preliminary stage to mature stage, its build-up history is much shorter than Taiwan surveillance companies so as the scale of economics. However, data shows that HIKVISION as new entrant breaks into surveillance industry easily even leads up the price war in global surveillance market

Motivation

The establishment of HIKVISION appear the existing weakness for Taiwan surveillance industry, the unknown weakness may have presence in factor of production, the volume of domestic and foreign market, variety of product and so on. The benefit of fulfilling the gap of unknown shortcoming in Taiwan security surveillance industry can enhance the recognition of themselves, even go through the integration to apply the strength, by processing so, enterprises can embrace the business opportunity in advance to hold the maximum bargaining power to compete with China's red supply chain policy.

Research Purpose

The purpose of this research aims to evaluate the elements that maintains the status quo of Taiwan security surveillance industry, identify the threats or advantage that may offer criteria to help to encourage the industry development, realizing the strategy made by companies. Moreover, the intervention of government may form a stimulation which has significant influence.

Research Question

To answer the research purpose, the study refers to three research question to fulfill research purpose properly.

1. What elements of the surveillance industry, such as domestic market and industry itself, help to keep the things as they are?

Absorbed knowledge from literature review encourages us to have brief realization in the interaction between factor endowment and demand conditions. To go further, what these two elements stand for in Taiwan security surveillance industry even the bilateral influences are crucial.

2. What are companies' strategy and the transformation of supporting industry?

From the perception of enterprises, its strategy, structure and rivalry follow with its future, also related and supporting industries determine whether the decision making supportable or not.

3. What extrinsic factors imply for the surveillance industry in Taiwan?

The two variables in Diamond Model are Government and Opportunity which may be considered not influential in industry structure, however, an industry survive or not sometimes counts on them.

Contributions

The finding of the research may help to evaluate the elements that maintains the status quo of Taiwan security surveillance industry, identify the threats or advantage that may offer criteria to help to encourage the industry development. Moreover, government and company should pay more attention to address either barrier or dilemma in this industry even provide solutions.

Limits

During the research, the short period of preparation is merely a year including two months of data collection, therefore, the content and interviewee can't be broadened ideal. In the interview, subjective perspective and time management are hard to prevent and control, each interview has an arranged schedule that the interview will be processed in their leisure time which won't last long. Furthermore, interviewees are individual, it's reasonable to preserve their ideology even critical thinking.

Delimits

The scope in this research is tightly closed to Taiwan surveillance company's supply chain, marketing strategy, industry structure.

LITERATURE REVIEW

Security surveillance industry

Security surveillance industry also known as video surveillance industry has become a basic requirement for security defense, which the network video surveillance system gradually influenced by the CCTV industry, webcam and video serve are products with the highest growth in security surveillance industry. From different orientations, based on System Type, the market is segmented into Analog Surveillance, IP Surveillance and Hybrid Surveillance. Based on Component, the market is segmented into Hardware, Software, and Services. Hardware is further segmented into Camera, Monitor, Storage and Accessories. Software segment is further subdivided into Video Analytics and Video Management Software.[1] Before the traditional security surveillance company have not massively produced the requirement of network video surveillance, the original network video surveillance company can occupy the market in advance. According to the research made by Frost & Sullivan on the global security surveillance market in 2004, the market scale of North America, Europe and South Asia were almost 30 billion, 26 billion, 7 hundred and 30 million US dollars respectively. The North America was the biggest market due to rising budget of national security defense from the government that is considered to develop stably in predictable future. For South Asia, up-and-rising companies face rising demand of security surveillance requirement due the rapid growth of economics in this area, the compound growth rate was 19.87 percent from 2000 to 2005, compared with the 12.11 percent that was the global compound growth

[1] KBV Research, "Global Video Surveillance Market (2019-2025)," https://www.reportlinker.com/p05795808/Global-Video-Surveillance-Market.html?utm_source=PRN.

rate, South Asia became as most potential development area. The revenue of security surveillance companies in Europe had 28.4 percent compound growth rate from 2004 to 2008, until 2008, the scale Europe market reached nearly 39 billion USD.[2] Along with the maturity of global security surveillance industry and market, there was growing trend in consumer market. The sensitive of price priority of consumer had created an opportunity for South Asia security surveillance industry, compared with North America and Europe, South Asia had a shorter history in developing security surveillance, however, South Asia has the advantage on cost which led to rapid growth, even though there was technical gap in huge compared to North America and Europe. In 2016, a number of Chinese vendors continued to gain market share rapidly in regions outside China. They tended to offer products with low price, and this had been a major factor in average price erosion in those regions. The slightly higher growth in the global market was forecast for 2017, at 5.5%, as a result, the world market was worth $16.2 billion in 2017.[3] The global video surveillance market valued $28,184 million in 2017, and is projected to reach $87,361.8 million by 2025, growing at a CAGR of 14.2% from 2018 to 2025.[4]

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[2] 郎若帆, "安全監控產業　台灣未來的產業新星," *臺灣經濟研究月刊* (January 1, 2007).

[3] Jon Cropley, "Growth in the Global Professional Video Surveillance Market Remained Low in 2016," https://technology.ihs.com/593593/growth-in-the-global-professional-video-surveillance-market-remained-low-in-2016.

[4] Supradip Baul Divyanshi Tewari "Video Surveillance Market by System Type (Analog Surveillance, Ip Surveillance, and Hybrid Surveillance), Component (Hardware, Software, and Services), and Application (Commercial, Military & Defense, Infrastructure, Residential, and Others): Global Opportunity Analysis and Industry Forecast, 2017-2025," https://www.alliedmarketresearch.com/Video-Surveillance-market.

The process of security surveillance system

In our daily life, the existence of surveillance camera includes within public area and private space that people. However, many of them only have brief recognition of surveillance camera, in fact, a systematic structure of rear end such as storage, cable and so on shares the importance of equivalent.

The first generation of security surveillance system was operated with Close Circuit Television (CCTV) and Video Cassette Recorder (VCR), meanwhile, the analog surveillance camera filming video then the signal will be transferred to monitoring host through cable. After the monitor connected with monitoring host, we can see and preserve the image or video in real-time. At previous period, the storage system is video type which was in need of constant rechange and hard to preserve due to the influence of temperature and humidity; therefore, the record video was often damaged because of abrasion in inner video type after long period operation. The abrasion cause noise, spot and unidentified target that issues problems of identification. Despite of the influence of the preservation of video type, the environment, material of cable and machine interference would influence the definition in monitor while video filming.[5]

The second generation of security surveillance system was operated with CCTV and Digital Video Recorder (DVR) which changed the storage system from video type to Hard Disk Drive (HDD) that saved the problem of constant rechange. The record video renewed and covered past video automatically, so that, the second generation of security surveillance system operated easily and stably compared with previous one. However, the surveillance camera in the front end and the transmission still run

[5] Michael Villaran and Robert Lofaro, "Condition Monitoring Techniques for Electric Cables," in *CONDITION MONITORING OF CABLES* (BROOKHAVEN NATIONAL LABORATORYNovember ,2009).

through analog signal so it still has a certain restriction on video filming such as the degree of identification that requires well-lighted environment, moreover, analog surveillance camera requires video capture card to transfer picture to digital video file that create Chromatic Aberration (CA). In the application of security surveillance, DVR system has provided closed architecture that could be used in the integration of storage device in back end and expansion function, normally, each system has fixed function of surveillance so the application only can be done passively.

The third generation of security surveillance system is operated with digital webcam, disk and Network Attached Storage (NAS). The development of Network Video Recorders (NVR) is caused by the entry of system integration followed by the invention of webcam in 1998. The most difference between NVR and DVR was that the entire security surveillance system was based on the architecture in Intellectual Property (IP), with replacement from traditional cable to web route. Each surveillance camera had developed as a network device which automatically allotted IP address to build the transfer between the monitoring host in back end and storage device. Compared with analog security surveillance system, NVR had easy construction and only requires web route and power cable that saved the cost of traditional cable and relevant device. Searchability was a key advantage of DVRs. It ushered in the era of management by exception. Thus, security staff is now saved from the drudgery of having to watch hours of video to detect suspicious incidents.[6] Nowadays, the manufacture of NVR has to produce whether the surveillance camera in front end or the storage system in back end in open architecture in order to meet the standard of Open Network Video Interface Forum (ONVIF) and Physical Security

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[6] Ken Mark, A New Era of Loss Prevention, (May, 2006).

Interoperability Alliance (PSIA).[7] Thus, all components including security surveillance camera and storage system will have no compatibility problem. From the perception of consumer, they have more flexibility to choose different components made by different factory, depending on what they need that satisfies their requirements. As a result of this inequality in terms of economic slowdown internationally, the technology transition from low-value analog video surveillance equipment to higher-value network equipment continued during the downturn and bolstered total video surveillance sales. Throughout 2011 this trend continued to hold, with analog equipment sales remaining muted and network equipment sales continuing to flourish.[8]

The application of Taiwan security surveillance industry

From numerous literatures, we have known that security surveillance industry is in a variety of application, the technological advances such as target detection, tracking, classification, and behavior analysis improved accuracy and reliability. The impact of these advances in video surveillance is pervasive, this exposure, in turn, enables the expansion of the vocabulary of video surveillance system, paving the way for more general automated video analysis.[9] These technological advances were conducted through digital application, remote monitoring that develop security surveillance into video management and system integration that includes an alert, access control system, fire alarm control panels and so on. It has an orientation that security surveillance industry reformed from passive to initiative security.

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[7] 陳峪賢, "安全監控系統的發展歷程," https://www.ithome.com.tw/node/76084.
[8] Mark Visbal, "Driving Ip Video Growth: Both Technology and Geography," https://www.sdmmag.com/articles/87554-driving-ip-video-growth--both-technology-and-geography.
[9] Niels Haering · Péter L. Venetianer · Alan Lipton, "The Evolution of Video Surveillance: An Overview," *Machine Vision and Applications (2008)* (June 19, 2008).

Michael Porter' s Diamond Model

The Diamond model emphasizes that an industry's competitiveness is formed with multilateral cooperation of factors which can take shape of criteria to evaluate whether an industry success to develop competitive advantage.

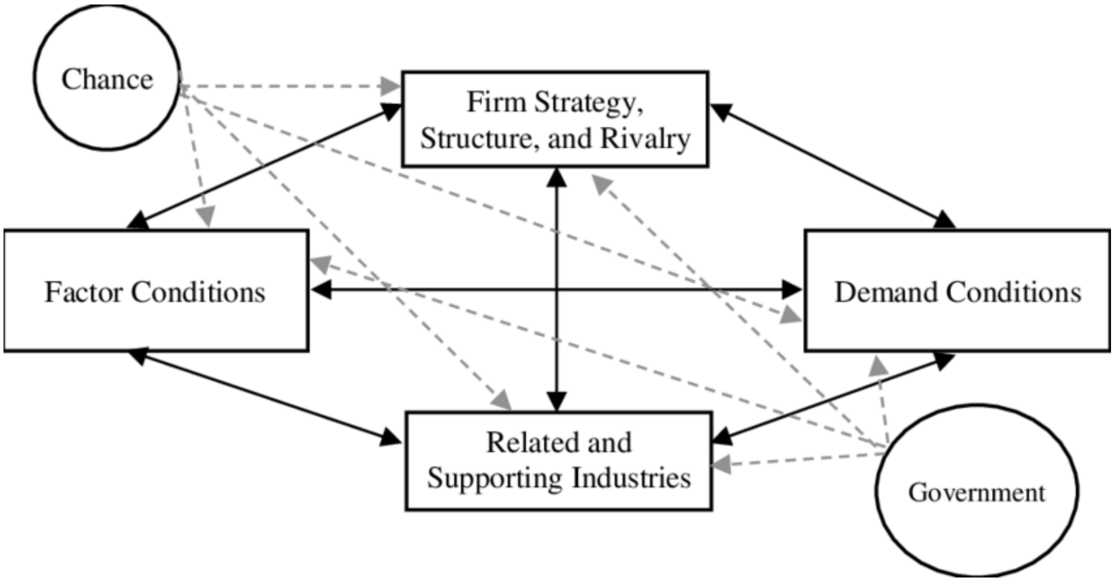

Figure 1: Michael Porter diamond model

Source: Michael E. Porter, *The Competitive Advantage of Nations*

The development of an industry results from specific factors, different factors have bilateral influence on each other that cause distinct category of industry. The diamond model is purposed on explaining and comparing industry's development in different nations.[10] The factors of industry development are divided into six parts based on diamond model: Factor conditions, Demand conditions, Related and supporting industries, Firm strategy, Structure and rivalry, Government and Chance. Factor conditions: Each nation may have outstanding performance in particular facto which should be operated efficiently to develop relevant industry. The factor conditions can be classified into five portions. First, human resource which includes

[10] Administrator, "Porter's Diamond Model: Why Some Nation Are Competitive and Others Are Not," https://www.business-to-you.com/porter-diamond-model/.

the cost, level of skill and quantity of labor. Second, natural resource such as oil, water, mineral resource that refers its reserves and quality. Third, capital resource implies the amount of capital and the market structure. Fourth, infrastructure is known as a nation's basic system and service such as transportation. Fifth, knowledge resource that is kind of invisible property. Demand condition: It mainly states the scale of domestic market, citizen's awareness and the development of industry's downstream. Related and supporting industries: The competitiveness of related and supporting industries often refers to the complex effort from each other. Supporting industry refers to companies which are involved with the production of product from upperstream to downstream. Firm strategy, structure and rivalry: Organization, management and a variety of strategy of company. Instead of intense competition, proper emulation will assist the progress of innovation development. Government: By legislating restriction or favored policy, government plays a role of influencer which can enhance or decrease the competitiveness of industry. Chance: It usually refers to an accidently and unpredictable matter that instant change an industry's environment and competitiveness. For most of industries, the most crucial comparative advantage comes not from a nation's natural resource but especially from those created factors in high-level of productive industry. Even though the lack of factors may cause disadvantage, the comparative advantage will be benefited if there has success in marketing strategy and innovation.[11] From a management perspective, a valuable contribution of Porter's Diamond Framework is that it is useful in analyzing location as a source of international competitive advantage for firms.[12]

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[11] Michael Porter, *The Competitive Advantage of Nations* (Cambridge: Harvard Business School Management Programs1993).

[12] A.J. Smit, "The Competitive Advantage of Nations: Is Porter's Diamond Framework a New Theory That Explains the Internatinoal Competitiveness of Countries?," *Southern African Business Review 14* (January 14, 2010).

Implementations of Diamond Model paradigm in previous research

Michael Porter's Diamond Model has been implemented in a variety of industries widely, in domestic literatures, it was used to investigate the fruit industry in Pingtung, the screw industry of Taiwan, the game industry of Taiwan and the bakery industry of Taiwan.

Chen's study took a clustering perspective – the Michael Porter's diamond model to investigate the relationship among these factors and impacts on the upgrading of competitiveness. He also utilized the Structural Equation Modeling (SEM) to test the fitness of model and draws policy implications for firms and government. The results showed that the input factor conditions and demand conditions do not affect upgrading significantly whereas industrial structure and competition and supporting industries influence upgrading significantly. Besides, the interaction between input factor conditions and demand conditions were positively significant. The primary implication implies that the input factor condition and demand condition could be improved to induce the upgrading momentum. Policy suggestions were proposed with respect to the two factors.[13]

Regarding to Ms. Wu's research, Taiwan's traditional screw industry is mostly SMEs, but they mostly come from the same master. Despite they are competitors, they have deep relationships. In his research, the literature analysis method and the different methods were used to construct hierarchical analysis methods. Based on the six major dimension of the Michael Porter diamond theory model, 20 assessment criteria were extended, and questionnaires were sent to Taiwanese screw industry experts. Experts integrate the relevant experience of the traditional screw industry of

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[13] 張孟勤, "An Exploratory Study on the Relationship among the Indicators of Diamond Model- the Case of Fruit Industry in Pingtung," (2006).

SMEs to integrate the vision of the future of the industry. Further, operating the Power Choice decision software to calculate the weight of each criterion is conducive to the analysis of the success elements of the traditional screw industry.[14]

Jiang’s research on Taiwan Game Industry based on Diamond Model, it is concluded that under the guidance of government policies, Taiwan Game Industry had created a perfect market scale and development environment with considerable market consumption capacity. Therefore, how to prevent the brain drain of technical talents in Taiwan and develop Taiwan-made games will be the focus of Taiwan Game Industry in the future.[15]

Chung’s paper discussed the competitive strategy of Taiwan bakery industry based on Diamond Model, and this research has revealed what are needed to improve the sales amount for the bakery stores were facing those days, and the roles that were played by the government and the competitors. Especially the industrial structure and competition, they contended business strategy effects. Each company hold their specific advantage and disadvantage. However, when it came to increase their sales volume and development, industrial structure and competition is strongly suggested in order to give out better ideas and advice.[16]

[14] 吳盈慈, "Using Diamond Model to Explore the Key Success Factors of Small and Medium Enterprises- an Example of Taiwan's Screw Industry," (2018).
[15] SHENG-YANG JIANG, "The Application of Porter's Diamond Model on Advantages of Taiwan Game Industry.," (2019).
[16] Kai-Yuan Chuang, "以波特鑽石理論探討經台灣烘培業之競爭策略," (2015).

Brief summary of literature review

To sum up, the literature review has briefly elaborated the security surveillance industry from global perception that security surveillance as known as video surveillance industry already became as a basic requirement of security defense, the network surveillance system gradually obtain more market share than traditional surveillance system along with the technological advance from analog, IP to Hybrid system. Even though North America has the biggest market due to rising budget of national security defense, South Asia remain growing and has the potential to surpass North America based on their cost advantage that has derivative relationship with the industry maturity which affects consumers with price priority. In the process of security surveillance system, this research has explained the process in detail from CCTV and VCR to webcam and NVR, and slightly expound the pro and cons of each which cause transformation. In the wake of technological advance, the derivative application such as target detection, tracking, classification and behavior analysis may turn security surveillance from passive to initiative security system. At last, this research set forth each factor from Michael Porter’s Diamond Model and its application in a variety of research to represent it validity of analyzing whether an industry has competitive advantage or not.

METHODOLOGY

Research Process

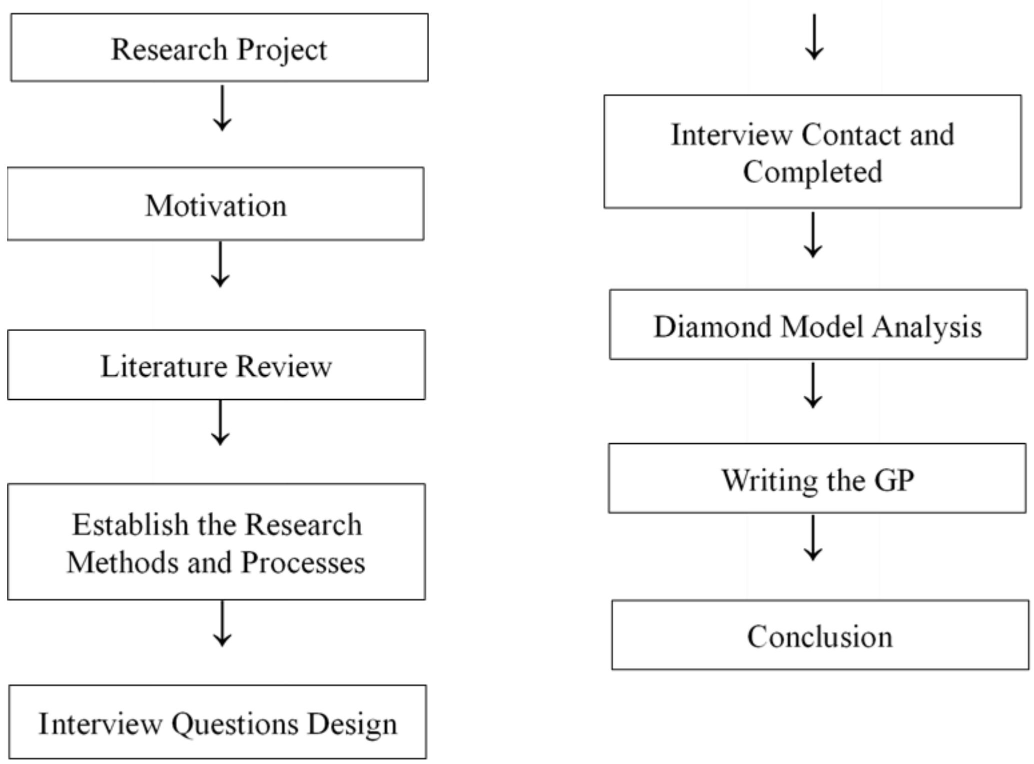

Figure 2: Research Process

This research aims to explore the Taiwan security surveillance industry's transformation and analyze it with Michael Porter's Diamond Model. First and foremost, the researcher set up the research project, motivation and research purpose by investigating all sorts of information. Besides, researcher establish the research methods and processes. Last but not least, research collect the primary data from interview and analyze it with diamond model.

Research Design

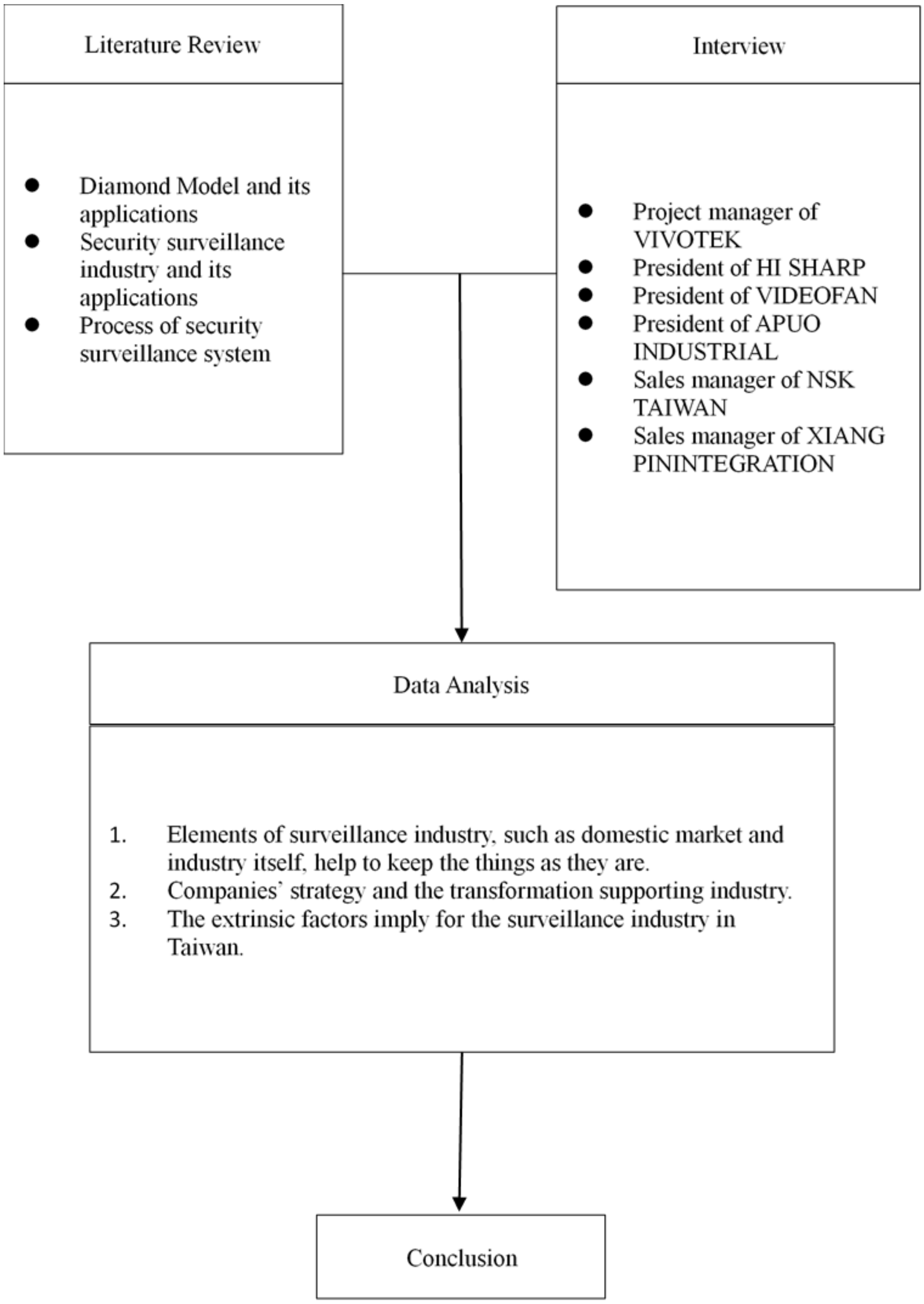

Figure 3: The Formulation of Research Design

This research would be designed by literature review and interviews. In literature review, it offers the definition of Diamond Model and the history of Taiwan security surveillance industry generated by previous researchers to reader to have brief understanding and background to realize this research efficiently. After analyzing the primary data given by interviewees build will generate the conclusion which is consisted of findings and research result.

Source of data

In this research, the primary principle that quality better quantity was settled firstly toward interviewees, so I initiated to contact top managements who I can make approaching, after asking for favor repeatedly, the number starts to make progress from three to six. To fit the study issue properly, this research adopts semi-structured interview as data collection to reveal interviewees' perception comprehensively by bilateral engagement, therefore, I visited Mr. Jiang in Taoyuan, Mr. Ke in Taipei and Mr. Ko and Mr. Dai in Kaohsiung, the occasion of interview are all in each of their company, except for Ms. Chen and Mr. Huang, due to their busy schedule, the interviews were done online that saves each other's time but reduce the possibility of inspiration. The sequential of the list are determined by company's capital.

Table 1-Classification of interviewees

Name	Company	Seniority	Position	Registered Capital
Ms. Chen	VIVOTEK INC.	6years	Project Manager	1,500,000,000*
Mr. Jiang	HI SHARP ELECTRONICS CO., LTD.	32years	President	800,000,000*
Mr. Ke	VIDEOFAN TECHNOLDGY CO., LTD.	23years	President	15,000,000*
Mr. Ko	APUO INDUSTRIAL CO., LTD.	18years	President	5,000,000*
Mr. Dai	NSK TAIWAN CO., LTD.	21years	Sales Manager	2,000,000*
Mr. Huang	XIANG PIN INTEGRATION LTD.	10years	Sales Manager	2,000,000*

* = NT dollars

Instrumentation

1. Smartphone: First, the voice message can be recorded by smartphone to examine and proof the authenticity of interview, moreover, the recorded voice message can speed up the process of writing transcription accurately. Second, smartphone can record image which is able to be used in presentation or as a proof of interview.
2. Laptop: To record some phrase or statement instantly that will also be an assistance while producing transcription.

DATA ANALYSIS

Compare to the IC industry in Taiwan, the surveillance industry generates less media exposure that general public barely has cognition of it. Therefore, instead of collecting the data from general public by survey, I interview with six people at different company; furthermore, their higher positions and seniority in surveillance industry allow them to have statement which can stand the test.

The surveillance industry in Taiwan has been existed more than thirty years. At the first beginning, many listed companies started with assembly plant that dedicates on foundry, from Analog security cameras, cables, DVR to display unit, the variety of product that Taiwan exported to overseas market is abundant. This phenomenon has been carried on till now which represents that the majority profit for Taiwan surveillance industry relies on foreign market, and it also points out that problems are root in domestic market and the structure of industry. In this research, I divided numerous reasons into three aspects. First, elements that keeps surveillance industry unchanged. Second, supporting industry, rivalry and companies' strategy. Third, extrinsic factors that may change the surveillance industry in Taiwan.

Elements that keeps surveillance industry unchanged

Factor conditions

Given information and interviewee's reflection reveal that there are bunch of factors which maintain the surveillance industry status quo, in this research, I will investigate factors condition and domestic condition based on Michael Porter's Diamond Model in order to reveal factors that keep surveillance industry unchanged.

Also, exploration in ideal breakthrough and remedy which leads stimulation innovation, creation and development will be elaborated as comprehensive as possible.

From literature review, factor conditions are consisted with abundant variety which closer to natural resource; including human resource, capital resource, geographical location, infrastructure and so on. These mentioned factors are in normal when there is a competition with other nations. The most influential factor is competitive advantage which is specialized factor, therefore, the bilateral stimulation between high-level and specialized factor of production will be the relationship that matters the sustainable and competitiveness of industry.

During interview, certainly responses that the specialized human resource is the most crucial element in factor condition expect for capital resource were spoken from every interviewee. They said that "In Taiwan surveillance industry, the mostly reason we can get other nation's order counts on our flexible resilience, stable skill of system integration and small amount of various production, these capabilities require specialized human resource more than others, furthermore, the process to cultivate a professional also require lots of sunk cost and systematically training structure, therefore, few of companies have the willingness to endure the risk and cultivate without cost recovering".

> *"I believe R&D is the key element to let company be sustainable so the invention department that I hired has 50 engineers. On the other hand, if company is in small scale, they cannot afford to this behavior." (Mr. Jiang)*

"I believe that the entry barrier of surveillance industry is low, however, when it comes professional, there are few guys who are capable to be named." (Mr. Ko)

Mr. Jiang claimed that specialized human resource takes a significant role in sustainable enterprise repeatedly during the interview. And he also raises the problem of SMEs that most of them can't afford to cultivate professional even hire them to chase after the speed of surveillance industry renewal which can maintain the competitiveness of company. He warned that if company do not value on cultivating specialized human resource but chose to lower their cost even focus on short term activity, elimination will happen on them sooner or later.

Demand condition

Whether hypercritical or praiseful comments made by consumer can be regarded as stimulation toward company, to win customer's favor, company will surely put effort on raising production technology, lowing cost, creating diversity and enhancing quality. Once these mentioned demands from customer had been satisfied, sale amount in domestic market will gradually rise and well reputation will be built. These rising sale amount and well-built reputation not only form competitive advantage for domestic market but also enhance the ability that company can expand their business overseas.

Wherefore, an industry's development in domestic can be considered as a performance criterion to value whether an industry has sufficient resource and capability to broaden overseas development or not. In following statement that interviewees had listed several points up to elaborate their perceptions about the demand of domestic market.

> *"Consumer electronics should possess partial domestic market share certainly, however, domestic consumer heavily follows price priority that could be seen as complicit threat to increasement." (Ms. Chen)*
>
> *"As far as I know, the amount of consumption is roughly two hundred million per month in domestic market, compared to export affairs, there's huge gap between them." (Mr. Jiang)*
>
> *"Nowadays, the consumption of domestic market has reached limit so is hard to increase and profit will decrease as long as product renewal goes on, based on these circumstances, companies relied on domestic market earn profit which is affordable to living expense" (Mr. Dai)*
>
> *"The consumption will raise if consumer's awareness of commodity raises that consumer have to give highly attention on commodity's added value and expertise instead of price priority." (Mr. Huang)*

From interviewees' statements, it's clearly to identify that the consumption of Taiwan domestic market in security surveillance industry has no comparative advantage that cannot furnish sufficient demand volume to fulfill domestic companies, and consumer's awareness of commodity also be regarded as a factor that influence consumer's purchase willingness strongly. Moreover, Mr. Jiang and Ms. Chen indicated that the scale of consumption in domestic market restrict the development of own-brand extremely. Any successful own-brand commodity which had been sold abroad requires steady domestic consumption, which certificate the product not just give investors and consumers' confidence but also win the favor from overseas.

Disappearance of SMEs in the future

The forecast of SMEs' disappearance was resulted from the interviewee's reflection and my self-prediction based on the narrow consumption in domestic market and the compression of commodity margin. Mr. Dai and Mr. Jiang had pointed out this issue and explained.

> *"Actually, I prefer the situation that big one goes bigger, and SMEs gradually vanish from security surveillance industry. So far, the large- and small-scale company has accurately differentiation, but medium company tend to have blurred characteristic position that leads to higher superposability of market and commodity positioning. Based on this circumstance, a portion of company will arouse price war to create advantage due to price priority of domestic consumer. After all, this negative competition will sacrifice the stability of product and the quality of industry structure." (Mr. Dai)*
>
> *"In the years to come, either insufficient economics scale, lower margin or a variety of additional production certifications will compress SMEs' living." (Mr. Jiang)*

The research question "Will the SMEs vanish, and listed company occupies the majority consumption in domestic market in upcoming future?" was approved by interviewees. Despite most of them had agreement on this issue, only Mr. Dai's and Mr. Jiang's statements have rational derivation which are representative. First, market position of SMEs is getting blurred than ever that arouses negative competition, lowers commodity margin and compresses their living. Second, additional production certifications aggravate production cost, such as EC-DoC which is a certification mark in Europe, Product Safety of Electrical Appliance & Material (PSE) in Japan and Bureau of Standards, Metrology and Inspection (BSMI) in Taiwan.

Supporting industry, rivalry and companies' strategy

Industry is connected; a powerful industry usually owns alliance or strong relationship with related and supporting industry, if not, it may be resulted from incomplete industry structure, intense competition and immature development.

Distribution Channel

In this part, I'll elaborate the related and supporting industry in Taiwan security surveillance industry with following chart based on collected data from interviewees which describes the status quo and possible phenomenon that may happen in future.

Table 2-Distribution Channel

Upperstream	Middlestream	Downstream
Mechanical components	Distributor(OEM, ODM)	Contractor
Optical lens		
IC Sensor		
Passive components		
Device driver		

According to the chart, there are different variety of produced materials in upperstream including mechanical component, optical lens, IC sensor, passive components and device driver. These are the most crucial components as known as semi-finished product to build a camera, once these raw materials had been manufactured, they would be delivered to distributor for processing into finished product. During processing, distributor may customize product for receiving different requirement from proprietor or retailor, after all, buyer always want their commodity has difference with others. However, this distribution channel may be changed sooner or later.

> *"At the beginning of Taiwan surveillance industry, upperstream manufacturer always sold products to distributor so that everyone had to purchase product from distributor. Nowadays, distributor must have capability to order in large quantity for obtaining dealership; unfortunately, few of them are capable to do so, based on this circumstance, upperstream umanufacturer may sell products to downstream nowadays. Take HIKVISION's distributor in Taiwan as example, to earn the dealership, they are forced to order ten million NT dollar per year, to deal with this amount, they sometimes sharpen their price in order to reach the target amount. This action also leads to price war in Taiwan surveillance industry." (Mr. Ko)*
> *"So far, there are three roles in domestic market: factory, distributor and contractor, in normal situation that consumer have to purchase commodity through. The price war led by HIKVISION and Dahua crush the margin profit by lowing price, therefore, many factories released to contractor directly so that the importance of distributor decrease." (Mr. Dai)*

As long with technology advance, the price of security camera and related products is getting lower so as price difference which implies the decreasing profit of distributor, not to mentioned they had to endure the stress of large quantity of order, therefore, more and more distributor have withdrawn from surveillance industry. In the following interview, most of interviewees agreed with Mr. Ko's statement that the role of distributor may disappear from surveillance industry.

After Mr. Ko and Mr. Dai's explanation, I realized that the mechanical component, passive component and device driver are confirmed that these materials are made in Taiwan, besides, the passive component and device driver are mainly manufactured by Taiwanese company, MStar. Parts of IC sensor also be produced by MStar. However, the majority of optical lens and IC sensor is made by Japan and China such as YutongTechnology Co., Ltd, which is a professional optical lens and related products manufacturer in Dongguan, China. Compare to other components, the production of optical lens and IC sensor requires higher technology and skilled labor, meanwhile, YutongTechnology Co., Ltd, is specialized in Research and Development (R&D), further explanation, they have abundant fund which R&D requires.

China's red supply chain

China, with the largest population and huge land, the title of World Factory is truly convincible, moreover, the environment of labor-intensive but least paid whereas all the company's wish to put their factory on. To attract investment, China government offers some favored policies and measures in order to help investors to process the application and production efficiently.

Easier land acquirement, cheaper cost in equipment and labor and favored policy are three measures to facilitate China's labor environment to become the world factory.

"Since China implemented the policy of export rebate in 1985, their products were able to sale at the price as same as cost. By doing so, China's product led the price war in surveillance market without losing profit."   (Mr. Ke)

Currently, the term of red supply chain has been used a lot in financial and management magazine and website to describe the combination of assembling high-tech equipment and massive cheap labor. In surveillance industry, the main members of red supply chain are HIKVISION, Dahua Technology, HiSilicon Technology and so on. With cooperation of small-scale factories and the R&D technology funded by government, these favorable requirements assist China component suppliers to level up as leadership and build entry barriers (price) that no one else can follow their steps.

"Take H.265, High Efficiency Video Coding (HEVC) as instance, this latest video compression standard is invented by China which replaces the old one and processes more efficiently. After the invention came out, China's Ministry of Industry and Information Technology (MIIT) started to play role as chairman to manage its commonality that all China surveillance companies will cooperate. Once H.265 obtains the commonality successfully, it would circulate abroad even form international standard gradually."   (Mr. Dai)

"Currently, Taiwan's environmental awareness raises, take Surface-mount technology (SMT) as example, Taiwan has the restriction of Restriction of Hazardous Substances Directive (RoHS) to prevent the pollution during

SMT, but China does not have this requirement. If Taiwan factories make it by themselves, the cost would be twice as China's cost, therefore, Taiwan imports many mechanical components made by SMT from China. (Mr. Ko)

In February 2013, H.265 acquired the recognition of International Telecommunication Union (ITU) which means that H.265 become mainstream standard is a matter of time, also, it indicates that China surveillance industry invades global surveillance supply chain badly with the assistance of China government.

From table 2, it clearly identifies that every interviewee has to obey based on the circumstance that they indeed have no backup solution with China red supply chain. Almost all of the interviewees regard cost as the most significant factor which China's red supply chain has absolute advantage on it that Taiwanese company choose to purchase commodity or semi-finished from China's red supply chain instead of manufacturing it on their own.

Table 3-Solutions toward red supply chain

Name	Solutions
Ms. Chen	Unknown
Mr. Jiang	Cooperation
Mr. Ke	Obedience
Mr. Ko	Obedience
Mr. Dai	Obedience
Mr. Huang	Obedience

“Companies in majority purchased the chip from China factory, but we cooperated with HiSilicon to involve in security camera chip production.” (Mr. Jiang)

“The security surveillance industry in China has advantage on its domestic market, compare that, Taiwan company has narrower domestic market. Furthermore, Taiwan surveillance industry is mostly consisted of Small and Medium Enterprise (SMEs), without massive production, invention and cost advantage, shifting industry orientation seems no alternative.” (Ms. Chen)

“China owns advantage on labor environment and domestic market, despite Taiwan enterprises hold the ability of system integration and resilience to meet emergency, none of them has such abundant resource to devote into, not to mention the possible sunk cost.” (Mr. Dai)

The fact that China has abundant resource in manufacture and further develops middlestream and downstream even integration is undeniable. Foreign investment in early period offer them an opportunity to cultivate their intensive labor to skilled labor, with governmental assistance and fund, China surveillance industry are capable to expend their R&D and domestic market efficiently, after all, these elements are shaped into perfect feed for beast. Meanwhile, if Taiwanese companies want to fight against it, the niche point and the place to survive will be primary principle to retain our superiority.

Companies' strategy

Continued with above context, since Taiwanese companies are forced to be influenced by China's Red Supply Chain, they must be prepared to deal with this situation. In here, this research will list up all the strategies that interviewees offered and try to figure out the most beneficial method even connective point.

> *"In future, Taiwan surveillance industry have to move business to non-consumer market and specialize in customized service. This market doesn't require too much volume in production but better profit. The establishment of VATICS INC. is kind of upperstream integration"   (Ms. Chen)*

What Ms. Chen mentioned is non-consumer market, which refers to a market place where products bought are either for industrial use or for the manufacturing of some other product such as industrial products, military industrial products, medical products and automobile products. Furthermore, VATICS INC. is a subsidiary of VIVOTEK INC., and it was established for providing multimedia communication system-on-chip (SoC) which can process analog, digital and mixed signal, with this microchip's appearance, it's capable to minimize the volume, decrease the cost and speed process up.

> *"I believe R&D is the key element to let company be sustainable so the invention department that has 50 engineers hired. On the other hand, if company is in small scale, they cannot afford to this behavior. For our subsidiary, Caravision Technology Inc., it has been established to the development of automotive image products and Video Management System*

> *(VMS). This system had been ordered already by Kerry TJ Logistics Company Limited (KTJ), for its advantage, it can show the proof afterward. After we give them the host computer, the data of driver behavior and Tire-pressure monitoring system (TPMS) will resent to host computer when system operating, this will level up the efficiency and security of management.”* *(Mr. Jiang)*

According to Mr. Jiang’s statement, he was pretty proud of company’s invention ability, he also mentioned about the system which applies in automobile. Connect it with what Ms. Chen said, the thing that Caravision Technology Inc. processes now is the application in automobile product, for that, it’s clearly to tell that Mr. Jiang put his focus on non-consumer market forward. In December 2018, automobile electronics accounts for half of total revenue in Mr. Jiang’s HI SHARP ELECTRONICS CO., LTD.

By reviewing all interviewees, only Mr. Jiang and Ms. Chen work in listed companies, accidentally, two of them have same opinions about the non-consumer market even share the same perception such as export trade and operation model.

> *“Export trade accounts on sixty percent on our total revenue and forty for domestic sale. For now, our company mainly operates two method on production. First, own-brand product as known as white brand product, second, Original Equipment Manufacturers (OEM) and Original Designing & Manufacturing (ODM). I believe this model will help company to acquire sustainable growth, as far as I knew, VIVOTEK do the same thing. Our domestic market limits the possibility of developing own-brand surveillance*

camera. We do have own-brand surveillance camera in Taiwan, but SMEs can't, in overseas, we do OEM with importer's logo except for Egypt and Malaysia, furthermore, OEM often relates to specialized product which brings more profit." (Mr. Jiang)

"Export trade accounts on six percent on our total revenue and forty for domestic sale. For SMEs, they cannot afford the expensive expense on invention or large scale assembly plant, so they are usually forced to search smaller quantity order which is outsource, not OEM or ODM." (Ms. Chen)

From their statement, it's solid that both of their companies put more focus on export trade due to better profit and higher standard of production which will create entry barriers to others including SMEs, also Mr. Jiang also indicated that developing own-brand camera and related electronics are a way to earn money, but it has difficulty caused by our narrow domestic market that SMEs can't be able to play this game.

After interview, I discovered that Mr. Ko and Mr. Ke play the same role as System Integration (SI), both of them do not work in listed companies, instead, they established their companies by their own. During the interview, it's clearly that their primary profit targets on domestic market even public unit.

"We do have a lot of related industries, but we do not go for low pricing strategy. In company we do have people who response to the affairs of contractor, but we do system integration a lot more which requires higher skill. Quicker transformation and better performance on internet make us

survive. For example, customer can do wiring arrangement, but when it comes to internet, they got no answer on it. If they entrust on us, there will be no follow-up problem they should worry.” (Mr. Ko)

“At the beginning, we used to receive the case about project management from bank, credit union and a little portion about private bank. As contractor, we also do SI. Take IP camera as example, we help them to set up arrangement with their limited budget. Our client are public units in majority. So far, we have contacted with National Taxation Bureau of Taipei, Fire Bureau, elementary school in New Taipei city, road monitoring project and so on. Our primary affairs are addition and replacement, because the requirements in public sector that the equipment have to be replaced every five years.” (Mr. Ke)

Despite Mr. Ko and Mr. Ke’s companies are positioned as contractors, both of them develops the ability as SI which can be divided as Hardware system integration and Software system integration. By doing so, they gradually form segmentation by providing professional consultation and service, bidding for public sector contracts or projects and offering no low-price strategy. These elements segment them from other contractors even earn the particular survival space in Taiwan surveillance market.

Mr. Dai and Mr. Huang both are sales managers, Mr. Dai is in charge of contacting with domestic customer that negotiation includes quantity, price and customization. For Mr. Huang, his company is a contractor of HIKVISION in Taiwan, so this company has brand advantage and quality assurance to broaden market.

"Customer service is most significant that our company advocates, compared to listed company, we don't have advantage on production scale, so we broaden our diversity in product that customer has more engagement to decide what they want such as outlook, quantity, parameter in picture and so on. In upcoming order, we as SMEs fail to develop export trade, so we plan to develop high-end product to raise the profit in OEM." (Mr. Dai)

Extrinsic factors that may change the surveillance industry in Taiwan

Government

The question that have you ever hear of any favored policy or limitation legislated by government had been asked during every interview, they expressed that the security surveillance industry is not valued as important as Information Technology industry (IT industry). Basically, there is nothing substantial which encourages security surveillance industry or advances its competitiveness in their career. Currently, People Republic of China had been accused for the information security problem, especially which HUAWEI sparked off global attention. Taiwan government responded this issue through the 《Government Procurement Act》 Article 17 which released by Public Construction Commission (PCC), Executive Yuan. This legislation indicates three principles of management toward China companies, companies in third-region with China capital, and companies in Taiwan with China capital.

1. China companies:

   Due to China's non-participation in Agreement on Government Procurement (GPA) and unsigned treaty of opening government procurement between China and Taiwan, whether it is qualified for GPA, restriction can be formulated in tender document that no participant be involved with company, commodity and labourer in China.

2. Companies in third-region with China capital:

   For applicable GPA procurement, government institution could exclude its application based on 23th principle of GPA if case is involved with national security. For not applicable GPA procurement, tender document cannot allow the participant of company in third-region with China capital with no reason.

3. Companies in Taiwan with China capital:

   If case be transacted by public announce, participant of company in Taiwan with China capital should not be restricted. For case with national security concern, military institution has to transact based on 104th principle; general institution has to transact by limited tendering based on 22th or 23th principle.

Even though there is no legislation that prohibits the import of China commodity, the crisis of information security in China and has strong influence of the market share of China commodity due to the interpretation letter order of article 36 and 37 of government procurement act released, so far, interviewees claimed that the restriction of China commodity has started from public unit's tendering already, sooner or later, this restriction will spread out to whole Taiwan if the crisis still exist. Since public unit took the brunt, the construction project and tendering also were implicated that these constructions are not able to use forbidden China commodity such as *HIKVISION* and *Dahua Technology*, therefore, the domestic market share of consumer electronics Made in Taiwan (MIT) is predictable to increase in surveillance industry in upcoming years.

Chance

Due to the two reasons, crisis of security information from China and the trade war between China and USA, order transfer phenomenon is gradually happening that many of customers from Norther American and Europe worried about high tariff and sparking security concerns, so they transferred the original OEM orders from HIKVISION and Dahua Technology to Taiwan.[17]Interviewees had positive perception about order transfer phenomenon, however, this ongoing event has no accurate data to support this claim except for Mr. Jiang who expounded his knowledge.

> "*Due to the security concern of products made in China, currently, Taiwanese company initiate the invention of chip such as Novatek Microelectronics Corp. Products have to mark its place of production where not allow to be China. Now, Taiwan public construction already forbid the use of product that produced by HIKVISIO and Dahua Technology, take the procurement of public sector as example, the products covered with MAD Address need to certificate it isn't made from China. So far, the procurement of public sector in Japan had formed this restriction too." (Mr. Jiang)*

The order transfer phenomenon benefits Taiwan security surveillance industry temporarily. The chance has sharpened our competitive advantage compared to China's red supply chain; however, this benefit is temporary so that Taiwan security surveillance industry must dedicate more effort to consolidate strength in case the chance turns to dilemma in future.

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[17] COCO LIU and CHENG TING-FANG LAULY LI, "China's 'Sharp Eyes' Offer Chance to Take Surveillance Industry Global," NIKKEI ASIAN REVIEW, https://asia.nikkei.com/Business/China-tech/China-s-sharp-eyes-offer-chance-to-take-surveillance-industry-global.

CONCLUSION

This research operated Michael Porter's Diamond Model to analyze the competitiveness of Taiwan security surveillance industry, and the major findings are divided into three parts in the following paragraphs; First, the factor conditions and demand conditions that keeps surveillance industry unchanged. Second, the companies' strategy, transformation of supporting industry and rivalry. Third, the uncontrollable variables led to government and chance.

Begin with the first part, the elements that keeps surveillance industry unchanged can be divided into two parts: factor conditions and demand conditions. First and foremost, after data analysis, the most influential factor in Taiwan security surveillance industry is specialized factor in human resource and production, the bilateral stimulation between them is the crucial element to form sustainable development and competitiveness such as resilience in emergency management, system integration in maturity and small amount of various production. Even though we had reclaimed the importance of specialized factor, in fact, few companies were willing to cultivate it due to high acquisition cost and the possibility of failing on cost recovering, but then focus on short-term profit.

Besides, from data analysis, this paper proofs that an industry's development in domestic market can be considered as a performance criterion to value whether an industry has sufficient resource and capability to broaden business in overseas. In Taiwan security surveillance industry, the consumption of domestic market has reached its limitation already that is hard to have a breakthrough, without innovation and the selling of Own-brand. Companies in small and medium scale relied on OEM will be hard to survive with declining margin as long as product renewal goes on;

likewise, the scale of consumption in domestic market restrict the development of own-brand extremely. Furthermore, price priority followed by customer heavily and downturn of consumer's awareness of commodity are deemed to two main issues lead to the recession of domestic market nowadays.

Last but not least, the author's forecast of SMEs disappearance is gradually constructed based on narrow consumption of domestic market and the declining margin of commodity. It even wins some interviewees' approval. It seems that the disappearance of SMEs is natural result based on economics liberalization of Taiwan security surveillance market which will eliminate the superposability of market and commodity positioning efficiently. Otherwise, negative competition may be raised by a portion of SMEs that lead to price war and sacrifice consumer right, quality of product and industry structure.

Regarding to companies' strategy, transformation of supporting industry and rivalry, this part begin with the mechanical components which include optical lens, IC sensor, passive components and device driver are the most crucial components as semi-finished product in upperstream. In middlestream, the component assembly will be processed in OEM or ODM by distributor, then it will be circulated to downstream which is contractor. The process from upperstream to downstream was the distribution channel in Taiwan security surveillance industry formerly. At the present stage, the decreasing margin damaged by China's red supply chain forced distributor to order large quantity in order to obtain dealership and lower the cost. If not, they will be eliminated for not enduring this intense finance, consequently, more and more distributors withdraw from this industry.

China is known as a world factory and its supply chain is the combination of assembly high-tech equipment and massive cheap labor. Moreover, the governmental cooperation and R&D fund are their favorable asset such as the export rebate policy, which makes China component suppliers are able to sale at price as low as cost and they still profit on it. For the rise of Taiwan's environmental awareness, RoHS will forbid the application of SMT in component production, if we insist to manufacture, it will cost twice as much as China's cost. Therefore, they built entry barrier (price) that other are hard to approach. Another example is HEVC-H.265, MIIT took the initiative to manage its commonality followed by China companies such as HIKVISION, Dahua Technology and HiSilicon Technology. This latest video compression standard has been invented successfully and it is a matter of time before it becomes general international standard. Given responses from interviewees indicate that Taiwan's firms do not have specific solution to handle with China's red supply chain, except for Mr. Jiang who participates the chip production of HiSilicon instead of purchasing. Cultivated labor and acquisition cost formed by foreign direct investment, governmental assistance and fund allow China security surveillance industry to develop R&D and domestic market. Theses competitive advantages surpass Taiwan at present. To contend against it, Taiwan companies are supposed to find proper niche point and survival places out to retain superiority.

Interviewees, Mr. Jiang and Ms. Chen, both work in listed company. With coincidence, they shared the same perception, about non-consumer market, export trade and operation model. Non-consumer product targets on specific need, such as industrial product, military industrial product, medial product and automobile product. Despite it required larger scale of economics, specialized human resource and R&D in maturity, the demand quantity was smaller compared to consumer electronics, but its profit is way more much than consumer electronics depends on the degree of customization. Therefore, HI SHARP established its subsidiary, Caravision

Technology Inc, to develop automobile market. In December 2018, automobiles electronics accounted for half of total revenue of HI SHARP Electronic. VIVOTEK also established its subsidiary, VATICS, to sell system-on-chip product of multimedia communication. Either HI SHARP or VIVOTEK, their export trade accounted for sixty percent of their total revenue and forty percent of domestic sale roughly that indicated the importance of export. Moreover, the ideal operation model can be divided into two portions by own-brand product and OEM to reach the goal of sustainable development. Contractors who developed the ability of SI could earn survival space by providing professional consultation and service, bidding for public sector or construction project as forming segmentation in domestic market. Also, customization and negotiable price and quantity could be deemed as one of niche point.

Finally, the uncontrollable variables led to government and chance. That the three principles of management toward China companies from 《Government Procurement Act》 Article 17 release by Public Construction Commission (PCC) Executive Yuan prohibits the import of China commodities from public sector tendering, and the order transfer phenomenon contribution the same effort even in Japan. Therefore, the domestic market share of consumer electronics Made in Taiwan (MIT) is predictable to increase in surveillance industry in upcoming years, moreover, order transfer phenomenon is already underway that interviewees approved of and held positive attitude.

In summary, Taiwan security surveillance industry faces the dilemma involving distributors withdrawal from industry, unfriendly growing environment due to narrow scale of domestic which leads to insufficient development of own-brand product and the influence caused by China's red supply chain. To have a breakthrough, listed enterprises have to develop in non-consumer market for higher profit gradually, implement ideal operation model with remaining stable export and development in own-brand product in domestic market to have sustainable development. For SMEs, they have to develop their niche markets such as tender for public sector or construction project, otherwise, the economic liberalization market would eliminate them despite the order transfer phenomenon given effect of China's crisis of information security cause the prohibition against the import of China surveillance security product that offers Taiwan security surveillance enterprises a breathing space.

APPENDIX A

訪談計劃書

文藻外語大學國際事務系日四技大學部

指導教授: 謝仁和 博士

研究生； 林晴唐

親愛的訪問者您好

這是一份學術研究計劃，想請您針對您個人及企業在台灣安全監控產業當今環境與條件變化下，您可能面臨的問題對問題的決策過程的回應；懇請您提供寶貴意見，您的意見是本研究的關鍵。本研究的訪談內容僅供學術研究使用，您個人的回答內容絕不對外公開，請您放心。而在論文書寫上僅會以您的姓氏及任職職位來表述，主要用以強調您的身分地位對於此訪問權重比的概念!若本研究對您有所助益，定當致送研究結果一份，聊表謝意。 誠摯的感謝您熱情的協助。

敬祝您 身心健康 事業長紅

訪談問題

1. 您的大名或姓氏?
2. 您目前任職的公司以及職位為何?
3. 您在安全監控產業從事多久，以及進入的契機?

4. 您在公司主要的業務為何，懇請詳細回答?

5. 就您的了解，安控產業在生產要素(人力、天然、知識、資本)其中是否有需特別著重發展的項目?若有，懇請詳細回答。

6. 對於國內產品通路從工廠、經銷商到工程行，其角色定位逐漸模糊有何看法?

7. 對於國內市場的需求強度您有何看法?

8. 對於國外市場的需求強度您有何看法?

9. 在國內安控市場是否有相關或支持產業?

10. 是否接受或耳聞政府對於安控產業的扶持政策?

11. 面對同行競爭時，您覺得該公司的優勢為何?

12. 面對國內安控產業競爭逐漸從藍海轉變為紅海，您有何看法?

13. 面對產業科技日新月異及研發需投入資金龐大，小廠大多選擇代工而非跟進。您覺得有何方法擺脫此困境?

14. 承上題，有些廠商採取轉型亦或增加產業關聯業務而非監視器，您覺得這決定為權宜或長久之計?為何?

15. 您對於台灣廠商大多數皆從中國進口關鍵零組件而非選擇自行研發的看法如何?例如:ARM,SMT,CCD 板

16. 對於海康近乎主導整個產業鏈，台灣廠商有何因應對策?

17. 您對國內安控產業的未來趨勢樂觀與否?為何?

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